

PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY12/13 CYCLE

Marsh Rd/Middlefield Rd/Sand Hill Rd

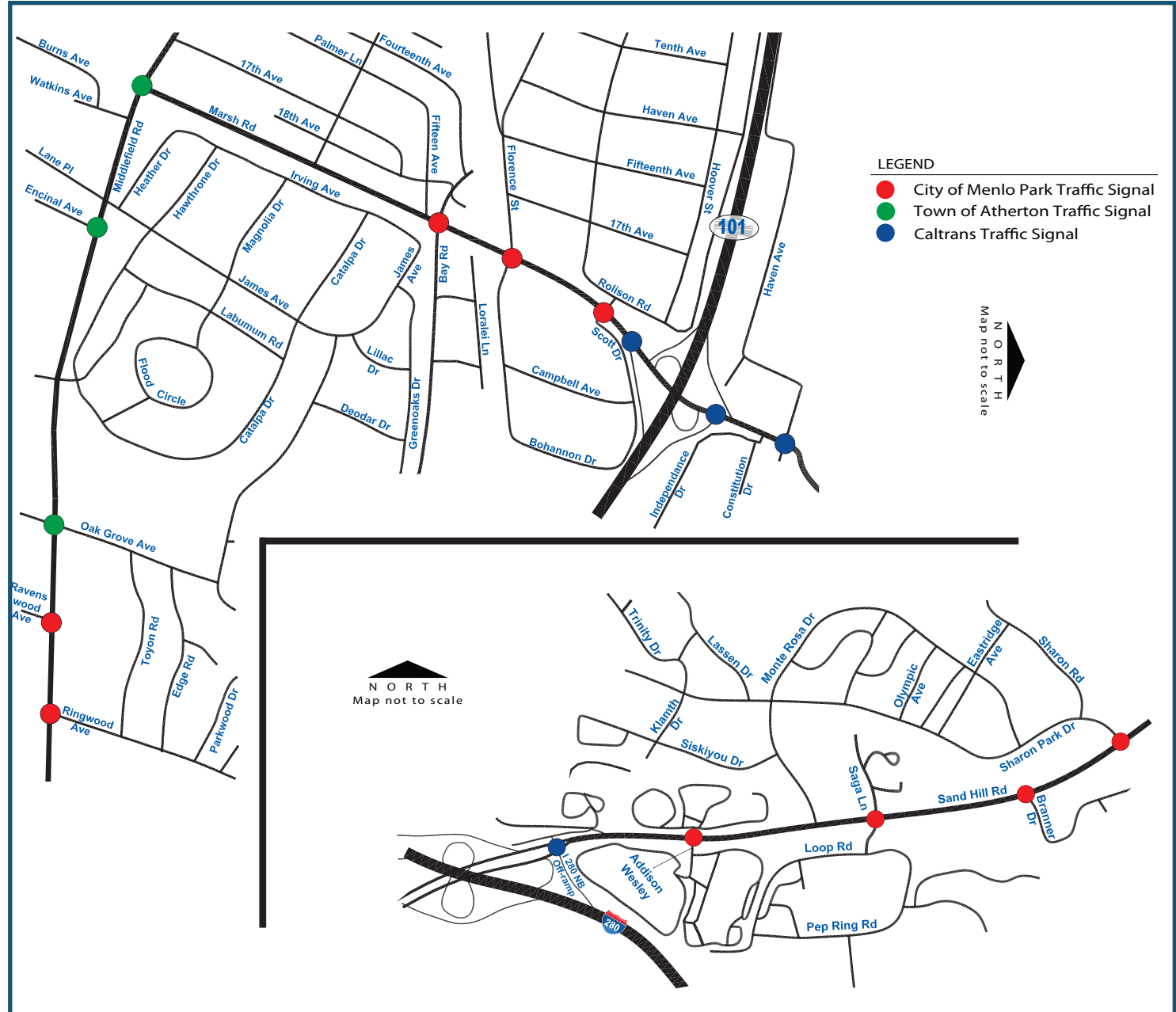
City of Menlo Park | Town of Atherton | Caltrans | Metropolitan Transportation Commission

PROJECT OVERVIEW

The City of Menlo Park, in conjunction with Caltrans and Town of Atherton, received a Program for Arterial System Synchronization (PASS) grant from the Metropolitan Transportation Commission to conduct a signal timing study for 16 signals along Marsh Rd, Middlefield Rd and Sand Hill Rd.

The project services include developing and implementing traffic signal coordination timing plans for the AM and PM peak periods for all project intersections and an additional midday peak period plan for five intersections along Sand Hill Road.

This PASS project involved the completion of the following major tasks: collecting traffic volumes and turning movement counts -- including bike and pedestrian counts -- at all project intersections; analyzing this traffic data including collision data to develop optimized signal timing plans; implementing and fine-tuning the plans in the field; and conducting travel time surveys to analyze the performance of the new timing plans.



...PROJECT OVERVIEW

The implementation of the new timing plans resulted in significant improvements in traffic operations at the intersection of US 101 Southbound Ramps/Marsh Rd. They also reduced queuing at the off-ramp during the PM peak period. To resolve implementation issues towards the end of the project, the PASS also helped in upgrading the existing firmware at Sand Hill Rd/Branner Dr and Sand Hill Rd/Sharon Park Dr intersections.

BENEFITS TO VARIOUS MODES

BENEFITS TO PEDESTRIANS:



The Walk timing and Flash Don't Walk clearance timing parameters were also updated to provide adequate time for children and seniors to safely cross the study intersections to accommodate the new walking speed of 3.5 feet/second.



BENEFITS TO TRANSIT: Based on the transit travel time runs, the project resulted in an average of 9% increase in speed and an average of 5% savings in transit travel time.



BENEFITS TO TRAFFIC SAFETY:

To enhance traffic safety, the yellow clearance timing parameters were updated based on posted speed limits along the study corridor.

Project Costs

Consultant Costs (Basic Services, Additional Plans)	\$45,415
Other Project Costs (GPS Clocks, Communications Equipment, etc.)	\$4,044
Agency Staff Costs (Estimate)	\$1,154
Total Costs	\$50,613

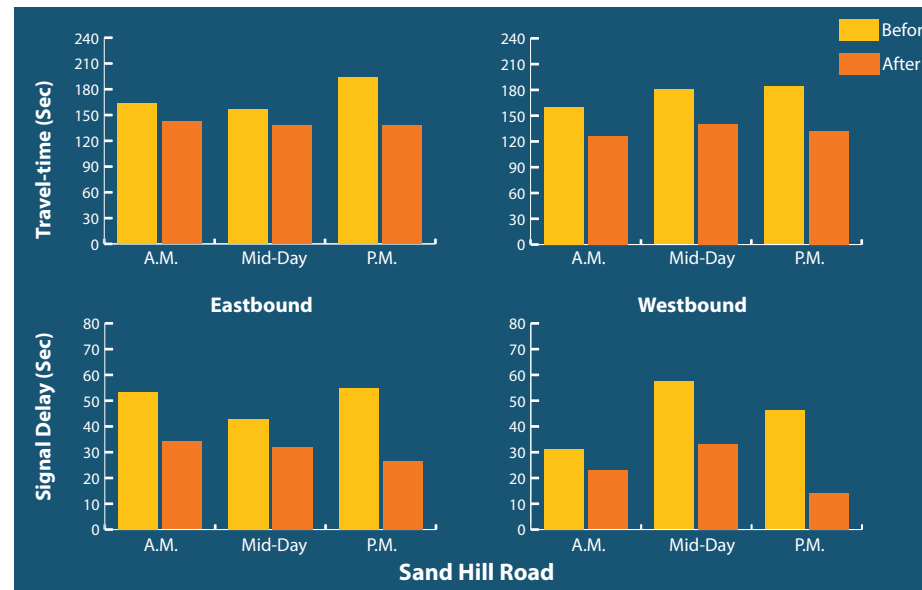
Project Benefits

Measures	Annual Average		Lifetime (5 Years)	
	Savings	Monetized Savings	Savings	Monetized Savings
Travel Time Savings	19,176 hrs.	\$366,023	95,879 hrs.	\$1,830,114
Fuel Consumption Savings	39,253 gal.	\$157,746	196,263 gal.	\$788,732
ROG Emissions Reduction	0.34 tons	\$423	1.68 tons	\$2,116
NOx Emissions Reduction	0.45 tons	\$8,101	2.25 tons	\$40,506
PM10 Emissions Reduction	0.06 tons	\$8,577	0.29 tons	\$42,884
CO Emissions Reduction	1.69 tons	\$131	8.47 tons	\$654
Total Lifetime Benefits				\$2,705,006
Transit Travel Time Savings	151 hrs.	\$2,880	754 hrs.	\$14,401
Total Lifetime Benefits with Transit				\$2,719,407

Overall Project Benefits	Auto	Transit
Average Decrease in Travel Time	22%	5%
Average Speed Increase	26%	9%
Average Fuel Savings	16%	N/A
Average Reduction in Signal Delay	51%	N/A
Average Reduction in Number of Stops	49%	N/A

Overall Benefit-Cost Ratio

59:1



PROJECT BENEFITS SUMMARY



Average Reduction in Auto Signal Delay: 51%

Average Reduction in Number of Stops: 49%

Auto Fuel Consumption Savings: 16% or 196,263 gallons



Total Emissions Reduced (ROG, Nox, PM10, CO): 12.69 tons

Auto Travel Time Savings: 22% or 95,879 hours



Average Transit Travel Time Savings: 5% or 754 hours

Overall Project Benefit-cost Ratio = 59:1



MTC CONTACT:

Vamsi Tabjulu

Arterial Operations Program Manager

VTabjulu@mtc.ca.gov

510.325.3462

Project Consultant:

TJKM Transportation Consultants

